

## REMARKS

Applicant expresses appreciation to the Examiner for consideration of the subject patent application. This amendment is in response to the Office Action mailed May 6, 2003. Claims 4, 6, 12, 15 and 19 were indicated as allowable. Claims 1-3, 5, 7-11, 13, 14 and 16-18 were rejected. The claims and specification have been amended to address the concerns raised by the Examiner.

Claims 1-19 were originally presented. Claims 1, 2, 5-19 remain in the application. Claims 3 and 4 have been canceled without prejudice. Claim 1 has been amended to place it in condition for allowance. Claims 5 and 6 have been amended to correct dependency. Claim 8 has been amended to be consistent with claim 1. Claim 16 has been amended. New claims 20-26 have been added.

The indication of allowable subject matter in claims 4, 6, 12, 15 and 19, if rewritten in independent form, is acknowledged with appreciation. Therefore, independent claim 1 has been amended to include the allowable subject matter of allowable claim 4, and intervening claim 3. New claim 20 has been added and includes the subject matter of original claim 1, the allowable subject matter of allowable claim 6, and intervening original claim 3. New claims 21-26 depend from claim 20, and correspond to original claims 2, 4, 5 and 7-9.

### **Claim Rejections - 35 U.S.C. § 102**

Claims 1, 3 and 5 (including independent claim 1) were rejected under 35 U.S.C. § 102(b) as being anticipated by Espenschied. Claims 1, 2 and 7 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tubel et al.

As stated above, independent claim 1 has been amended to include the allowable subject matter of allowable claim 4, and is therefore allowable over Espenschied and Tubel et al. Dependent claims 3, 5, and 7 are allowable for at least their dependence on allowable independent claim 1.

### **Claim Rejections - 35 U.S.C. § 103**

Claims 8, 10, 11, 13, 16 and 17 (including independent claim 16) were rejected under 35 U.S.C. § 103 as being unpatentable over Tubel et al. in view of Espenschied.

Dependent claim 8 is allowable for at least its dependence on allowable independent claim 1.

With respect to claims 10, 11 and 13, Applicant respectfully traverses the rejection, and the combination of the Tubel et al. and Espenscheid references. The Tubel et al. reference discloses an electrical generating apparatus for “downhole” applications, or oil production wells. The apparatus generates electricity from petroleum traveling up the well. The Espenscheid reference discloses a system for producing electrical energy by causing explosions of a combustable vapor. The system includes an explosion chamber that produces compression waves. Applicant respectfully submits that a person of ordinary skill in the art would not have a reasonable expectation of success because 1) combining the explosion chamber of Espenscheid with the oil production well of Tubel et al. appears particularly dangerous, and/or 2) the explosion chamber of Espenscheid is designed to cause compression waves in air, while the downhole system of Tubel et al. is designed to work with flowing oil. The Office Action references FIGs. 7A and 8 of Tubel et al., in which pressure waves are sent down through the flowing oil. It is unclear to Applicant how the explosion chamber of Espenscheid can be configured to cause combustion waves to travel down the oil flow of Tubel et al. Again, Applicant respectfully submits that a person of ordinary skill in the art would not reasonably expect success from such a combination.

In addition, Applicant respectfully submits that the references, when combined, do not teach or suggest all of the elements of the claims. Independent claim 10 recites a “combustion tube, operatively coupled to the resonating system, configured to produce pulsatile combustion gases to support resonating movement of the resonating system”. The Tubel et al. reference teaches an apparatus which generates electricity from petroleum traveling up the well, or in which pressure waves are sent down through the flowing oil. Neither reference teaches or

suggests a combustion tube operatively coupled to the resonating system with combustion gases to support resonating movement.

Therefore, Applicant respectfully submits that independent claim 10 is allowable, and urges the Examiner to withdraw the rejection. In addition, dependent claims 11, 13 and 14 are allowable for at least their dependence on independent allowable claim 10.

Independent claim 16 has been amended to recite “an elongated combustion tube having a closed end, a mixing chamber and an exhaust port at an opposite end, the resonating structure being operatively coupled to the exhaust port of the combustion tube”. The Espenschied reference discloses an electric generator coupled to a closed end of the explosion chamber while an opposite end is left open.

Therefore, Applicant respectfully submits that independent claim 16 is allowable. In addition dependent claims 17 and 19 are allowable for at least their dependence on independent allowable claim 16.

## CONCLUSION

In light of the above, Applicant respectfully submits that pending claims 1, 2 and 5-26 are now in condition for allowance. Therefore, Applicant requests that the rejections and objections be withdrawn, and that the claims be allowed and passed to issue. If any impediment to the allowance of these claims remains after entry of this Amendment, the Examiner is strongly encouraged to call Garron M. Hobson at (801) 566-6633 so that such matters may be resolved as expeditiously as possible.

Check No. 17196 in the amount of \$78.00, is enclosed for one additional independent claim, and four additional claims over twenty. Seven claims were added (claims 20-26), including one independent claim (claim 20), while two claims were canceled (claims 2 and 3), for a total of twenty-four claims.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 20-0100.

DATED this 18<sup>th</sup> day of June, 2003.

Respectfully submitted,



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